REMARKS

Applicants appreciate the Examiner's notation of the incorrect dependency in claims 20-26 and proceeding with the examination as if the claims had already been corrected. A formal correction of those claims is made above.

The Examiner's observation under the heading "Double Patenting" has been noted. The attention of the Examiner is drawn to the fact that one set of the claims covers the combination whereas the second set deals with the sintered combination. Thus the claims are not substantial duplicates.

Claims have been rejected in this application under 35 U.S.C. 103 over Watanabe in view of Uchikoba, Clough and Taguchi, and optionally JP '131 or over JP '711 in view of Uchikoba, Clough and Taguchi, and optionally JP '131. All of these rejections are respectfully traversed.

A sintered ferrite member material has a magnetization mechanism in which it passes through the stage of magnetic domain wall motion relaxation in order to reach the state of rotational magnetization resonance starting from a low frequency to a high frequency in an AC magnetic field. The Q decreases sharply at a frequency in which the magnetic wall motion relaxation occurs and further deceases towards the rotational magnetization resonance point. In order to maintain a high Q value up to a frequency band of several GHz, it is first necessary to stop the magnetic domain wall motion completely and then shift the rotational magnetization resonance frequency to a frequency which is higher than the frequency band of the several GHz.

The present invention is based on the determination by the inventors that the degradation in the value of Q by the magnetic domain wall motion can be completely stopped by dispersing a ferrite powder in a non-magnetic matrix if the powder has a

particle size which allows each of the ferrite particles to remain a single domain particle. In general, the maximum dimension in each particle in the powder will be about 3 μm.

It was also determined that when a part of a nickel ferrite is substituted by cobalt, the rotational magnetization resonance frequency can be made higher by increasing the substitution amount of the cobalt. The inventors recognized that properties favorable for a core for a high-frequency inductor can be obtained by combining the cobalt substitution feature with the single domain particle feature.

It is apparent that any combination of the prior art of record prior to the present Office Action (Watanabe, Uchikoba, JP '131 and JP '711) fail to teach or suggest the present invention. As pointed out in a previous response, and as now acknowledged by the Examiner, these fail to reveal any teachings or suggestion that the particles of the ferrite powder have a size such that each of the particles remain a single domain particle. Indeed, the present Office Action points out that Watanabe fails to disclose an embodiment possessing all of the claimed composition limitations and despite overlapping ranges, undue experimentation would be required to achieve the claimed composition, especially because the reference was silent with regard to the desire to optimize the size of the particles to ensure single domain states. It is respectfully submitted that the additional U.S. patents cited do not overcome these deficiencies.

More particularly, for the single domain feature of the present invention, reference has been made to the Clough and Taguchi references. Neither of these references teaches or suggest that degradation in the value of Q by the magnetic domain wall motion can be effected by dispersing a ferrite powder in a non-magnetic

matrix in consideration of the particle size of the ferrite particles. Indeed, neither of these references concern a spinel nickel-cobalt ferrite.

The background discussion in columns 1 and 2 of the Taguchi reference relate to a hexagonal strontium or barium ferrite of the magnetoplumbite type having the formula set forth at col. 2, line 10. These ferrite do not contain either nickel or cobalt and do contain at least one of yttrium, a rare earth element and bismuth. While one dealing with those magnetoplumbite type ferrites may wish to consider the proportion of single domain particles in order to achieve an intrinsic coercivity sufficient for practical applications. There is nothing to suggest that the spinel type ferrites of the present invention, which contain both nickel and cobalt and do not contain yttrium, a rare earth element or bismuth, have a problem with regard to achieving practical applications. There is nothing in this reference to suggest that having a ferrite powder with a particle size which permits each of the ferrite particles to remain a single domain particle will affect the magnetic domain wall motion.

The Clough reference also does not refer to nickel-cobalt spinel ferrites. While the reference does mention a desire to obtain single domain properties while in a process of preparing a material to be sintered, the ferrite particle of this reference grow during sintering resulting in a multi-domain structure. The reference does not suggest that the ferrite particle have a particle size which permits each of the ferrite particles to remain a single domain particle as recited in the instant claims. The reference also does not teach or suggest that the single domain particle will have any effect on the magnetic domain wall motion of a sintered spinel nickel-cobalt ferrite.

Watanabe discloses a sintered body including a nickel ferrite, Uchikoba discloses a sintered body containing a hexagonal ferrite containing cobalt and the Japanese reference discloses a sintered body including a Ni(Cu)ZnCo ferrite. Even if

the single domain teachings of Taguchi or Clough were applied to these references, a multi-domain structure would result because the particle grows during sintering. Nothing teaches that the ferrite particle should have a particle size which permits each of the ferrite particles to remain a single domain particle.

In light of all of the foregoing considerations, it is respectfully submitted that this application is in condition to be allowed and the early issuance of a Notice of Allowance is respectfully solicited.

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Respectfully submitted,

By 

Edward A. Meilman
Registration No.: 24,735
DICKSTEIN SHAPIRO MORIN &
OSHINSKY LLP
1177 Avenue of the Americas
41st Floor
New York, New York 10036-2714
(212) 835-1400
Attorney for Applicant